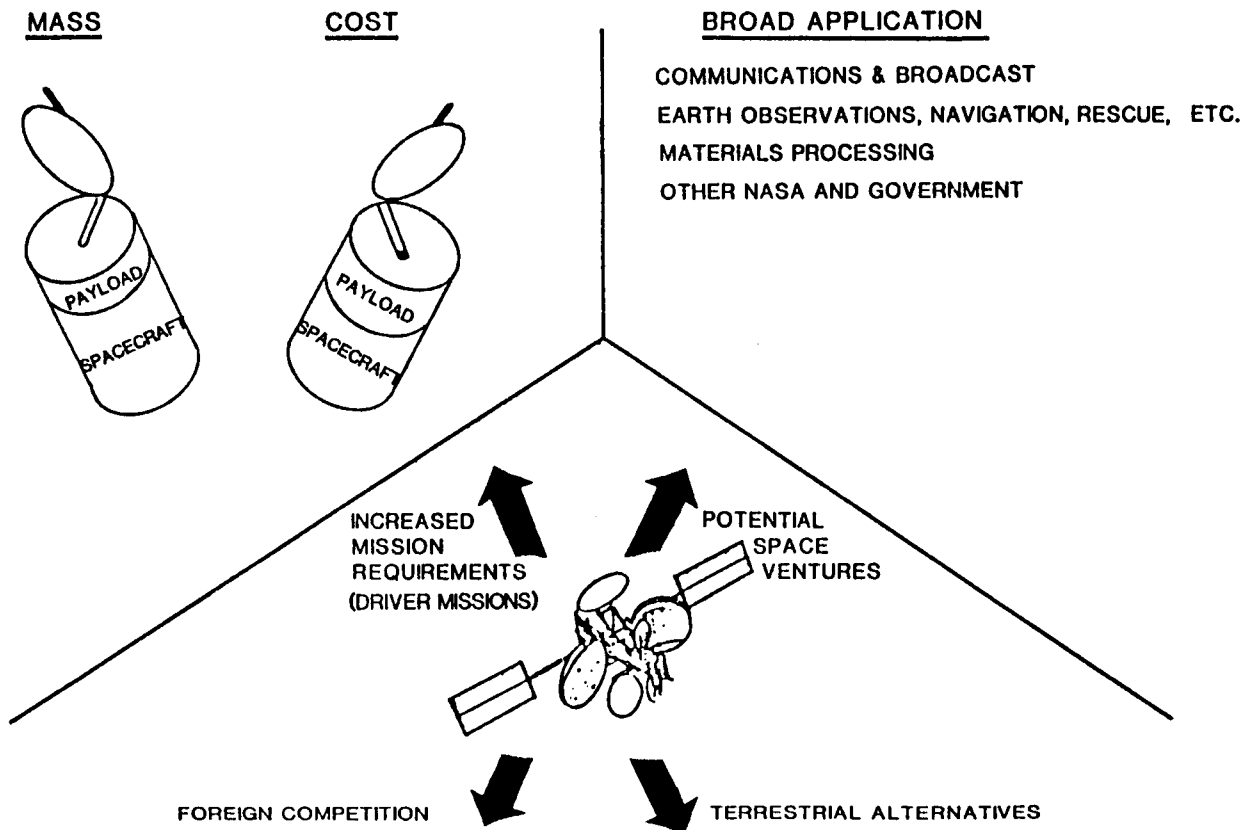


## SPACECRAFT 2000 PROGRAM OVERVIEW

Robert Bercaw  
NASA Lewis Research Center

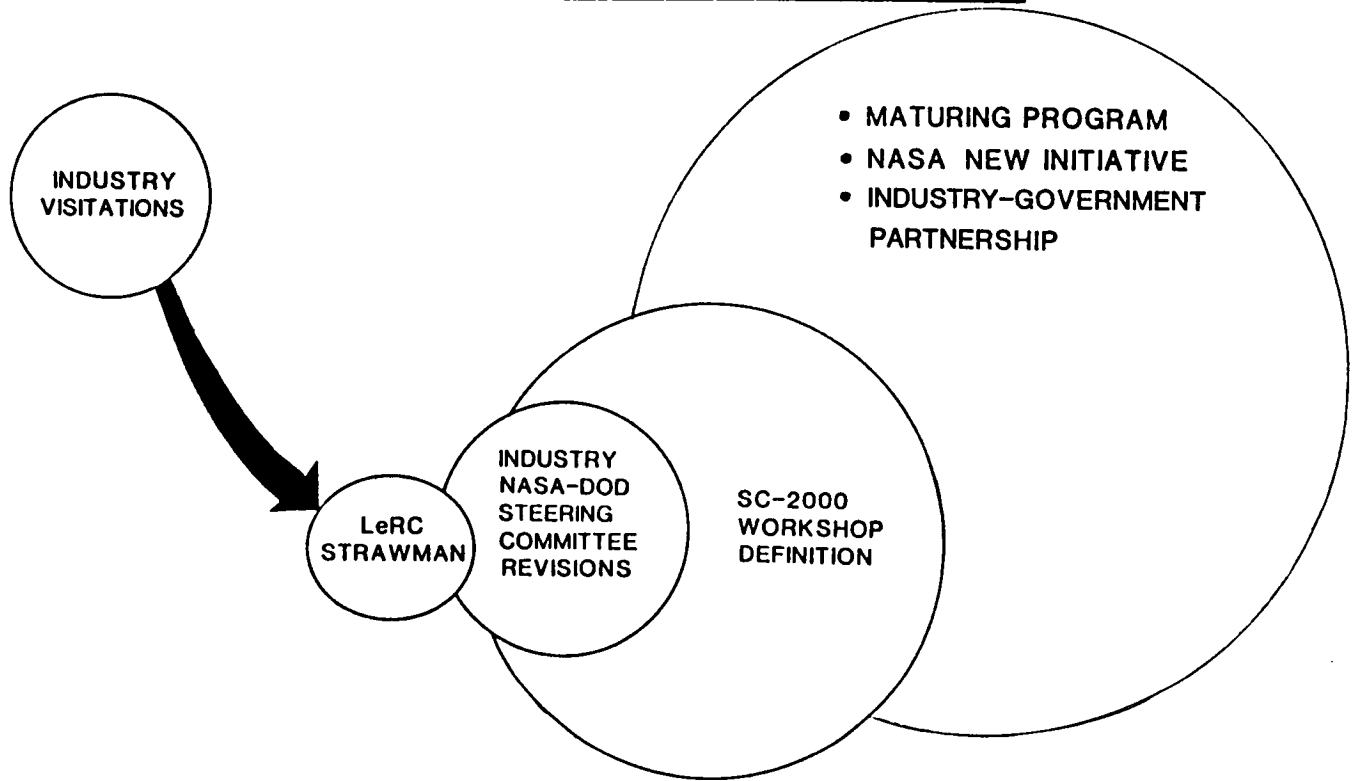
### WHY FOCUS ON THE SPACECRAFT?



### BARRIERS TO TECHNOLOGY DEVELOPMENT & UTILIZATION

<u>DEFINITION</u>	<u>ADVOCACY</u>	<u>DEVELOPMENT</u>	<u>UTILIZATION</u>
0 SYSTEM COMPLEXITY	0 LACK OF GOAL	0 COMMUNICATION OF NEED	0 TECHNICAL RISK
0 DESIGN VARIETY	0 ENABLING VS ENHANCING	0 REQUIREMENT DEFINITION	0 INCOMPATIBILITY WITH EXISTING DESIGNS
			0 SPREAD OF TECH READINESS DATES

## SPACECRAFT 2000 PROGRAM FORMULATION



### SC-2000 PROGRAM DEVELOPMENT

#### INDUSTRY VISITATIONS

- 0 DISCUSSIONS WITH NINE COMPANIES
  - WIDE VARIETY OF SPECIFIC PROBLEMS
- 0 AGREEMENT ON CRITICAL ISSUES
  - SPACECRAFT-RELATED COSTS
  - SPACECRAFT SUBSYSTEM WEIGHTS
  - SYSTEM LIFETIME & RELIABILITY
  - TECHNICAL RISKS
- 0 CONSENSUS IS THAT A "SPACECRAFT 2000" TYPE PROGRAM IS IN THE NATIONAL INTEREST

## S/C 2000 NASA/DOD/INDUSTRY STEERING COMMITTEE

### MAJOR OBJECTIVES & SCOPE

- PARTICIPATION: VOLUNTARY, FROM MAJOR SPACECRAFT VENDORS/SUBSYSTEMS SUPPLIERS/USERS  
ONE REPRESENTATIVE (OR ALTERNATE) PER ORGANIZATION
- ROLE: RECOMMEND PROGRAM STRATEGY, OVERALL GOAL, TECHNOLOGY  
DEVELOPMENT/VERIFICATION PLAN. SUGGEST WAYS TO SERVE AND MEET NATIONAL  
NEEDS. ASSIST IN ADVOCACY OF POTENTIAL NEW INITIATIVES.
- ADVISORY: PROVIDE ADVICE/GUIDANCE TO S/C 2000 WORKSHOP, AND ON PROJECTS OF MUTUAL  
INTEREST.
- CONFIDENTIALITY: MAINTAIN AND PRESERVE CONFIDENTIALITY. RETAIN INTEGRITY OF INTERNAL  
PROGRAMS/PROCESSES OF PARTICIPATING ORGANIZATIONS
- COORDINATION: COORDINATE OVERALL ACTIVITIES. FACILITATE TECHNOLOGY TRANSFER TO FLIGHT.  
EXCHANGE INFORMATION ON CONFIDENTIAL BASIS.

### PROGRAM OBJECTIVE

TO IDENTIFY THE TECHNOLOGIES REQUIRED TO BUILD SPACECRAFT OF THE 21ST  
CENTURY, AND TO IMPLEMENT THE TECHNOLOGY PROGRAMS NEEDED TO ACHIEVE THEM.

### INITIAL PROGRAM FOCUS

#### MASS LIMITED SYSTEM

GEO SATELLITES  
GEO PLATFORMS  
POLAR PLATFORMS  
PLANETARY

#### SYSTEMS

STRUCTURES  
BUS SYSTEMS  
INTEGRAL PROPULSION SYSTEMS

### PROGRAM APPROACH

- 0 GOVERNMENT/INDUSTRY PARTNERSHIP
- 0 TOTAL SYSTEM APPROACH AT SPACECRAFT LEVEL
  - FOCUSED TECHNOLOGY
  - TECHNOLOGY READINESS DATE
- 0 ADDRESS ANCILLARY NONTECHNOLOGY ISSUES
  - DESIGN, DEVELOPMENT & TESTING
  - MANUFACTURING
  - OPERATIONS
- 0 VALIDATION USING TERRESTRIAL AND/OR IN-SPACE TEST BEDS
  - E.G., OAST OUTREACH/INREACH PROGRAM

### KEY ISSUES

- 0 MAJOR TECHNICAL PROBLEMS IN CURRENT SPACECRAFT
- 0 MAJOR COST FACTORS IN CURRENT SPACECRAFT
- 0 ANTICIPATED SPACE INFRASTRUCTURE
- 0 MAJOR TECHNOLOGY REQUIREMENTS FOR FUTURE SPACECRAFT
- 0 ANTICIPATED DEMANDS FOR FUTURE TYPES OF SPACECRAFT
  - NASA
  - DOD
  - COMMERCIAL

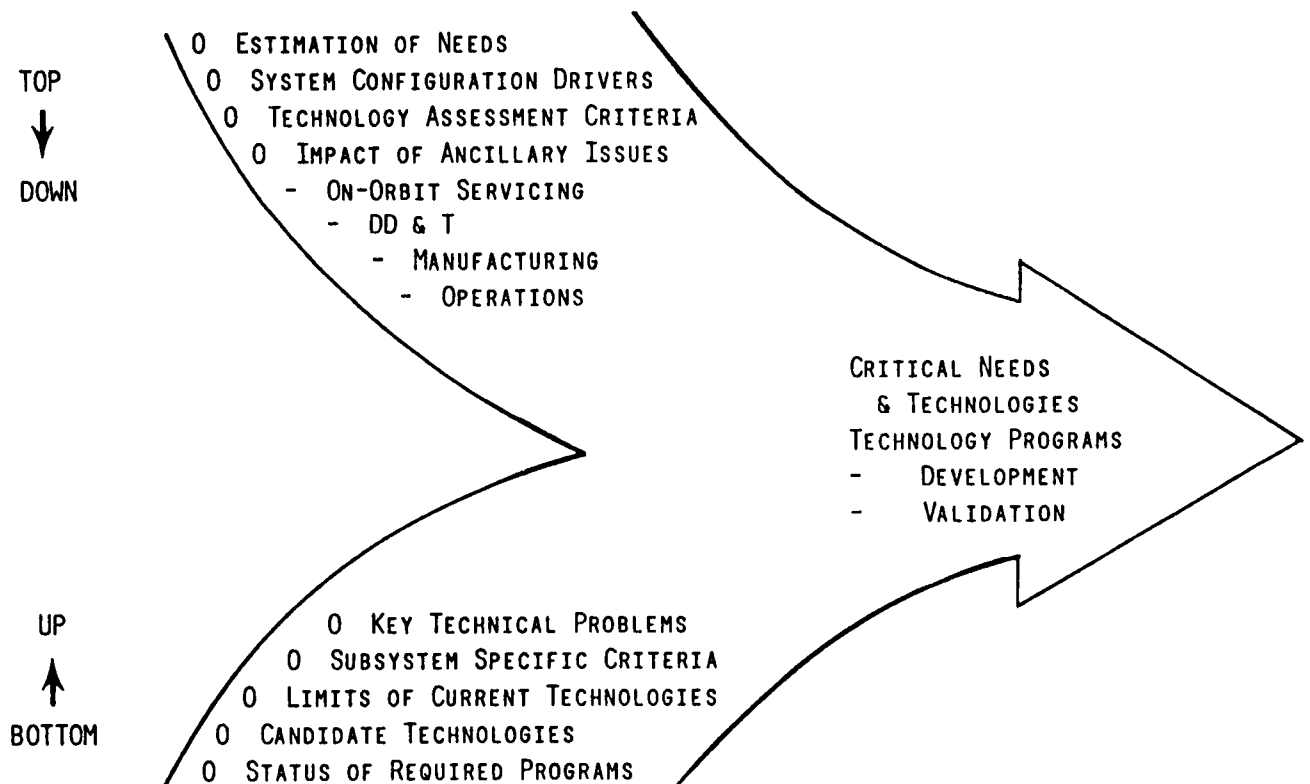
## GOALS

- 0 TO IDENTIFY THE CRITICAL NEEDS AND TECHNOLOGIES FOR SPACECRAFT OF THE 21ST CENTURY.
- 0 TO RECOMMEND TECHNOLOGY DEVELOPMENT AND VALIDATION PROGRAMS, AND POSSIBLE GOVERNMENT/INDUSTRIAL ROLES AND PARTNERSHIPS.

## OBJECTIVES

- 0 INCREASE AWARENESS AND EXCHANGE OF IDEAS AMONG PARTICIPANTS
- 0 HIGHLIGHT THE SPACECRAFT AS A FOCAL POINT FOR TECHNOLOGY
- 0 FACILITATE INDUSTRY-GOVERNMENT COORDINATION

## WORKSHOP APPROACH



## WORKSHOP OUTPUT

### CONFERENCE PROCEEDINGS

#### 0 PRESENTATIONS

#### 0 WORKING GROUP REPORTS

- CRITICAL TECHNOLOGIES
- REQUIRED PROGRAMS VS TECHNOLOGY READINESS DATES
- IMPACT OF SPACE INFRASTRUCTURE
- VALIDATION REQUIREMENTS
- COLLATERAL TECHNOLOGIES
- ASSESSMENT OF ISSUES
- RECOMMENDATIONS

#### 0 CONFERENCE RECOMMENDATIONS (STEERING COMMITTEE)

### BASIS FOR INITIAL PROGRAM PLAN

### FOUNDATION FOR DESIGN & TECHNOLOGY TRADE STUDIES

## WORKSHOP ORGANIZATION

LISA KOHOUT

GALE SUNDBERG

JIM KISH

HENRY CURTIS

KARL FAYMON

IRA MYERS

KAREN WESTER (CONFERENCE COORDINATOR)

MARJORIE FULLER

PAULA MITCHELL